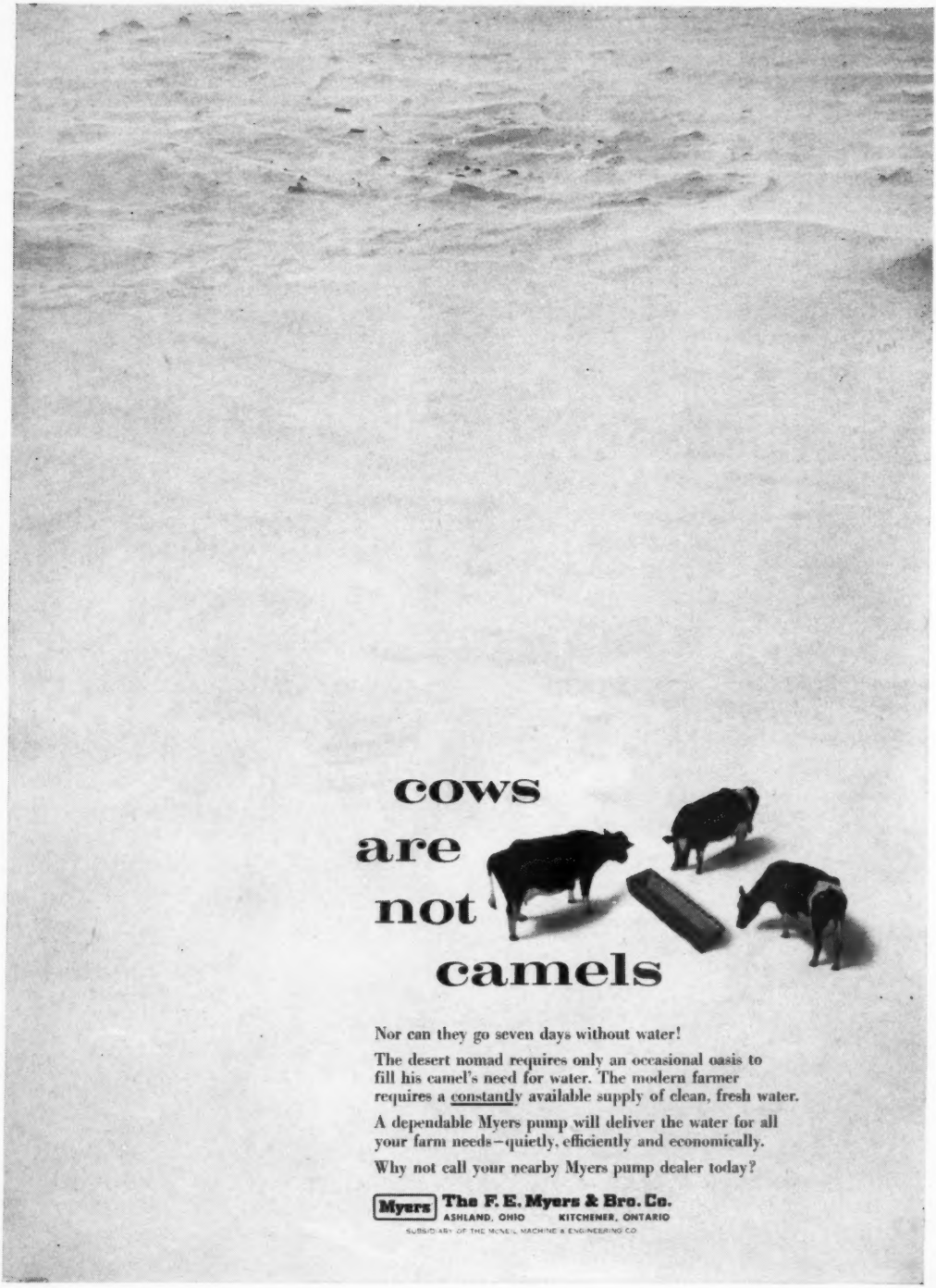
OCTOBER 1961

EOF electricity on the farm

SOUTHEAST EDITION

"Delicious" apples live up to their name, even after months of storage. See page 10.



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SOUTHEAST EDITION

electricity on the farm

OCTOBER 1961
VOL. 34, NO. 8

A Reuben H. Donnelley Publication

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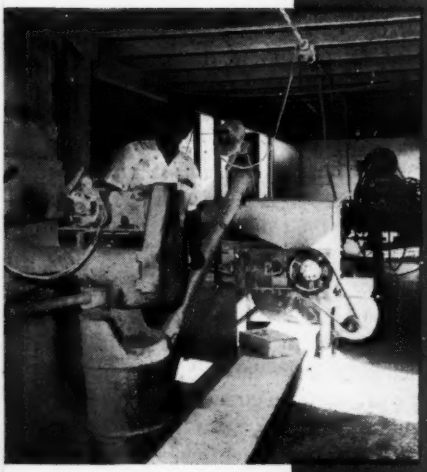
Agriculture Needs Public Relations

Every so often we hear the very disturbing remark, "Agriculture is a Declining Industry." It is especially disturbing because the experts with numbers and statistics can alway offer numerical proof to back up the statement. But there is an old axiom that states "Liars figure and figures lie." The figures used to substantiate statements degrading to agriculture very seldom tell the *whole* truth. They usually point out that we have fewer farms today and fewer people living on our farms. To this point, the figures are telling the truth.

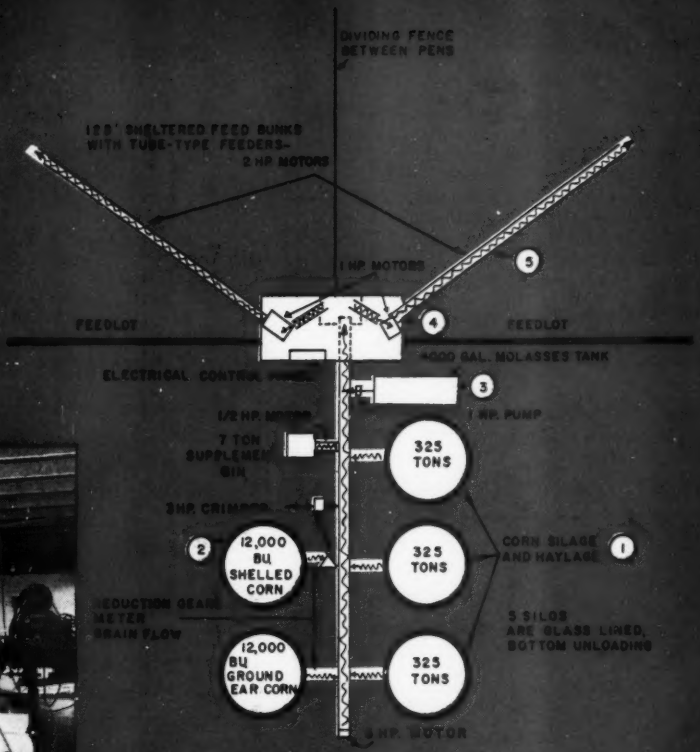
But let's explore a bit further. When we delve into figures on production we quickly discover that agriculture is far from a declining industry. United States has 8,000 new mouths at breakfast every morning and not one of them must leave the breakfast table hungry because our farms haven't produced enough food for their plates. Our population growth curve continues steadily upward. Our food consumption curve goes up with the population curve—probably even a bit faster because we eat better today than ever before. And fortunately for each and every one of us, our food production curve stays just a step ahead of our consumption curve, creating a so called "Farm Surplus." Unfortunately, politicians and others capitalize on this surplus food reserve in a manner usually unfavorable to Agriculture itself.

In our opinion, it's high time more favorable publicity were given to the other side of the picture. The story needs to be properly told that "Agriculture is not a declining, but rather a growing industry," keeping just a step ahead of our population growth to assure every citizen of our country that he won't go to bed hungry tonight. That's an insurance the agricultural technology and mechanization of many countries hasn't been able to develop for their people.

Hugh Hansen

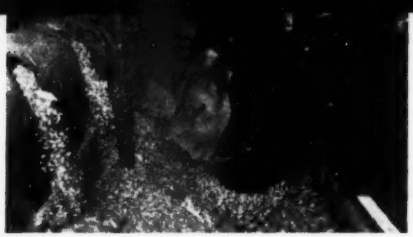


Shelled corn is unloaded by 6-inch auger, passed through 3 hp crimper before it drops into conveyor. ②

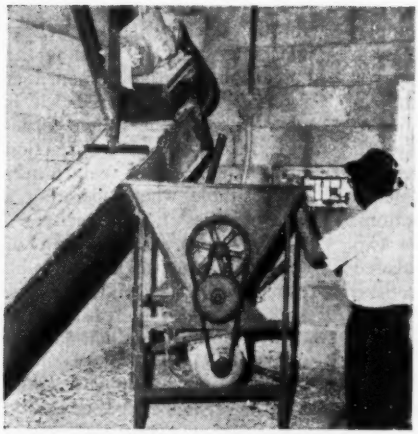


SYSTEM FOR BEEF FEEDLOT

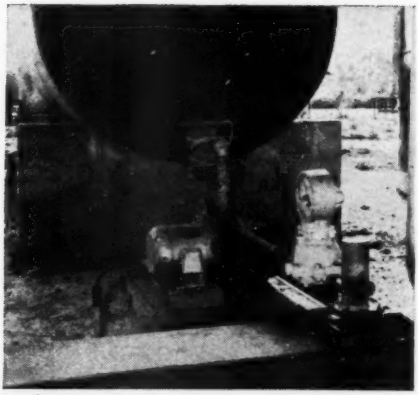
- blends rations
- handles silage
- makes feeding 700 steers a push-button job



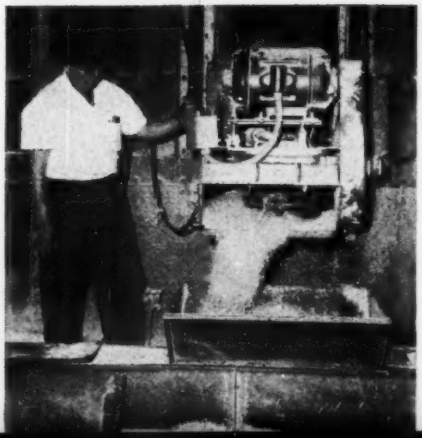
Feed is distributed evenly the full length of the bunk —or the tube can be rotated slightly so that feed is delivered only a fraction of total length. Either way, distribution is even. ⑤



From hopper at end of ground-level conveyor, blended feeds or silage are lifted into hoppers that serve bunk feeders. 2 hp motor drives 128-ft. length of auger in tube-type feeder. ④



Molasses tank holds 4000 gallons, uses 1 hp pump. Electric heating cable around pipe assures flow in cold seasons. Molasses is last ingredient added to blended rations. ③



Glass-lined, bottom-unloading silos are used for silage, shelled corn and ground ear corn. Reduction gears meter grain flow into ground-level conveyor that carries ration to feed bunks. ①

A few miles from Charleston in South Carolina there is at Wadmalaw Island one of the nation's most highly automated beef feedlots. It is part of Anchorage Plantation.

Operator E. A. Lesemann insists that every steer must perform to make a profit, and in a convenient card file he keeps a record of the performance of each animal from the day it arrives on the farm until it is sold.

Between morning and afternoon feedings of 700 steers in the feedlot, Lesemann posts and studies performance records. The feeding is a push-button operation that takes about 40 minutes of his time.

Cull Slow Gainers

Each steer is weighed at 6-week intervals. "We might do it oftener," Lesemann admits, "except that the agitation upsets the steers and could cause a slow-down in gain." Average gain for his feeders is 2.5 to 2.7 lbs. per day. Some have gained as much as 3.4 lbs. daily. Those that fail to make a satisfactory rate of gain are sent back to pasture for holding and inspection.

The plan at Anchorage is to buy feeders weighing 500 lbs. and up. All purchased cattle are quarantined for 30 days, inoculated and wormed. Then follows an interval of 3 to 4 months on pasture. Part of this time the animals are penned so they have access to one wing of the feeding bunk and receive all the silage they will clean up twice a day. Letting the steers out to pasture considerably lessens the cleaning problem in the feedlot, Lesemann says. Normally, about 500 steers are kept on pasture.

Confinement to the feedlot comes when steers reach a weight of 800 pounds. For 120 days, they get a ration of ground

SYSTEM FOR BEEF FEEDLOT

(continued)

ear corn, cracked shelled corn, supplement and molasses. Objective is to market them at 1100 lbs., a weight at which Lesemann receives top price.

System Blends Rations

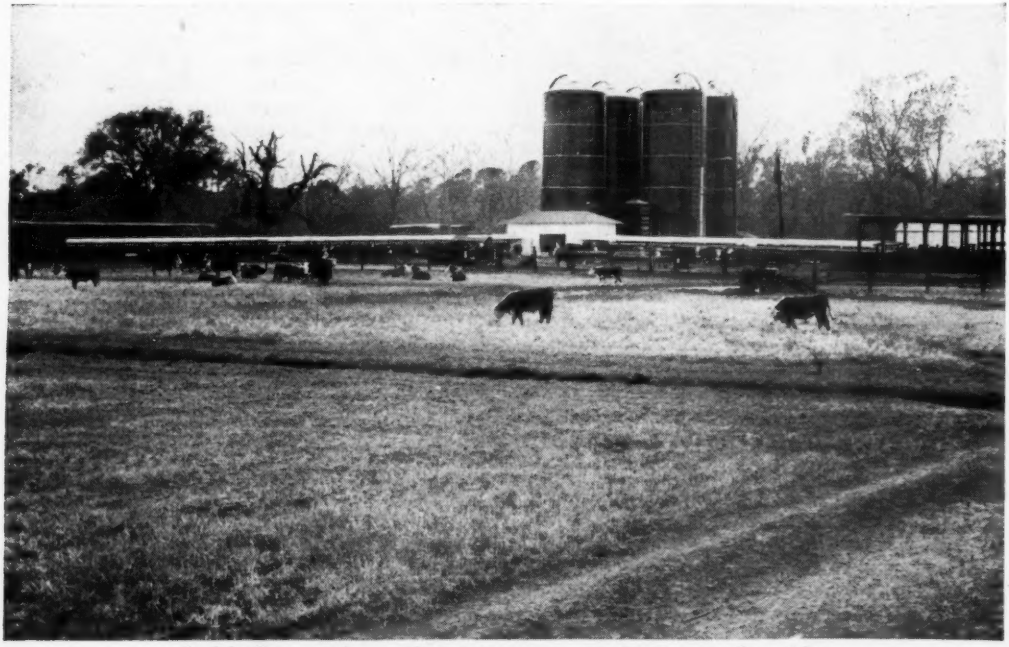
The mechanical feeding system at Anchorage also is used to blend different ingredients to make a complete, freshly-mixed ration. Five glass-lined, bottom-unloading silos are used for silage and grain storage. Each will hold 325 tons of silage or 12,000 bushels of corn.

In the finishing ration, Lesemann blends 10 lbs. of ground ear corn and 10 lbs. of shelled corn with 2 lbs. of 32% supplement and 2 lbs. of molasses. The corns go into the conveyor first. Then come the supplement and molasses. Viewed from above, the feeding system looks like a big Y with the conveyor that receives and blends the ingredients being the bottom. At the intersection with the two feed bunks, the ration is augered upward, dropped into hoppers, and carried down the 128-ft. bunks by tube-type mechanical feeders.

Even Distribution in Bunks

Feed is distributed evenly along the length of each tube through openings spaced at regular intervals. By rotating the tube slightly, an adjustment that requires only a moment, it is possible to set the system to deliver feed along only a fraction of its length. This feature may be desirable when operating a feedlot at less than capacity.

For Lesemann, the job of feeding is a matter of removing covers from the bottom openings of his silos and pushing the control buttons that will activate motors to supply the feed he wants to the steers he wants to have it. It is a task that he can do in either a business suit or work clothing. □ □



Beef feedlot on Anchorage Plantation separates steers into two pens by weight. Those under 800 lbs. have access to 6 acres of pasture, are fed silage twice daily.

From milking 22 cows by hand, Troy and Norma Childers have advanced step by step to an

. . . All-Electric Farm and Home

Troy and Norma Childers turned to farming shortly after World War II when they bought a tract of land in Georgia's Schley County. Their beginning was nothing fancy or glamorous. The place had on it a rambling, run-down frame house that they were destined to call home until they replaced it in 1959. Neither had much first-hand farming experience. So Troy enrolled in a veteran's on-farm training class at nearby Ellaville High School.

From the beginning, they have viewed their farm as a business and they have treated it that way. They have progressed steadily, one step at a time. When they determined to go into dairying, Troy in-

(Continued on next page)

Modern kitchen includes built-in oven and surface units, venting hood and dishwasher.

All-electric home built by the Childers has 2000 square feet of living area.

500-gallon bulk tank should save enough on the cost of hauling milk to amortize its cost in five years, Childers figures.

Trusted adviser on farm mechanization problems is the agricultural engineer (right) for the power supplier who serves Childers' farm.

Heating system is inconspicuous baseboard type that allows room temperature control.

All electric farm and home...

sisted on paying the price to get high-producing cows for foundation stock. His present Holsteins average above 10,000 lbs. of milk and are descended from cows he bought at the dispersal of an outstanding Eastern herd.

Started Milking by Hand

At the outset, he and Norma milked 22 Holsteins twice a day by hand. As soon as the morning milking was finished, she drove away on the tractor to mow pastures or cut hay while he cleaned the barn. Only in emergencies did they hire labor.

Then came milking machines. Five years ago a pipeline and 500-gallon bulk tank were added. Said Childers: "The hauling cost for bulk milk was only half what it was for cans. I figured to amortize the cost of the tank in five years on this saving alone."

Mechanization like this has allowed him to increase his milking herd to 35 cows. His comment on mechanization: "You push a button and it does not talk back. A big feature about using electric power is that little maintenance is required."

Feedlot Mechanization

Now his attention is turned to mechanization of the feedlot. Already in operation is one 380-ton silo with an unloader and bunk feeder. Another silo is scheduled to go up shortly. It will be the same size as the first one, located to make it easy to transfer the unloader. "It's easier," declares Childers, "to feed cows with the unloader and bunk feeder than it is to wash dishes."

Childers grows no row crops. He sticks to coastal bermuda grass for silage, says he has good results with it. He suggests that he could increase his production some with corn silage, but he doubts it would be profitable for him since he would have to invest in additional equipment and the milk, being in excess of his base, likely would sell on a lower market. This is one example of the business yardstick he applies to every move—will it return a profit over the long run?

Expansion and mechanization plus the building of a new home required more electric power, and to get it the Childers have had to enlarge their service entrance to 200 amperes. From the central distribution pole, all electric service is extended underground to pumps, dairy and residence. This eliminates the hazard of low-hanging overhead wires, which could be pulled down accidentally or become entangled in equipment.

2 Years Building House

The house—this is Norma's pride—was two years in the building. T-shaped, it is constructed of concrete block and has 2000 square feet of living

area. Except for laying the block and putting on the roof, they did the work themselves —between milkings.

Long before the house was finished Norma had developed the habit of collecting dirty dishes through the day and carrying them to the dishwasher in the new kitchen. The dishes washed while she joined her husband in painting or carpentering. This is one great advantage she sees in the dishwasher—it saves her time for other jobs. For the first time since they became farmers by choice, she is cooking electrically—with built-in surface units and oven. Her baking has even improved, she suggests, due to the even temperatures of the new oven.

Furniture Remains Dusted

She says that the baseboard electric heating system is so quiet and inconspicuous that several visitors, failing to see it, have asked how the house is heated. She had previously used space heaters which warmed one side of the room, left the other cold. Now she has uniform heat, individual room control, and says it is so clean that it is wonderful to dust and see things remain dusted.

The Childers have come to the point of living and farming all-electrically in carefully-measured, well-chosen steps. They still have other steps ahead, but the ones already taken have increased their productivity, lightened their chores, removed much of the drudgery from their work and helped them achieve farming success. Last winter, the house finished, Troy found a new use for his day-time leisure hours —commuting to a college in nearby Americus to study economics. □□

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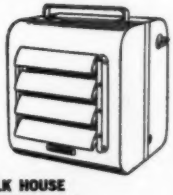
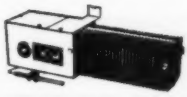
Also more and more rural families are discovering the special kind of controlled warmth electricity provides throughout the home. Temperature of each room is controlled by separate thermostat. No maintenance problems. It's clean, flameless, safe and efficient.



MILK HOUSE
STORAGE BINS
BROODING PENS



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Cover Story

ON-FARM APPLE STORAGE

Apple picking time is here again, and the Francis brothers are in the midst of gathering about 15,000 bushels.

No price competition with low quality fruit for these Francis Farms apples. They will go into refrigerated storage, wait for prices to level off.

Storage rooms have combined capacity of 15,000 bushels. This one uses 10 hp refrigeration unit to hold temperature just above freezing and the humidity near 85%, preserving apple quality as long as 6 to 8 months.

Lets growers sell higher-quality fruit on higher-price market

The changing market for farm crops has touched apple growers Pink and Bob Francis of Waynesville, North Carolina. Five years ago they could sit back and wait for buyers to come and take their fruit in bulk. Now they have to go out and sell their apples. And they have to package them to fit the customer's needs.

In their case, the customer is a grocery chain. Packaging, for the most part, is in small plastic bags, ready to be priced and put on the counter. Sales begin during the harvest and are spread over 6 to 8 months, so storage is a necessity.

From their 40 acres of orchards, the Francis brothers are in the midst of picking a crop that usually runs around 15,000 bushels. With the changing market, they consider themselves extremely fortunate to have on-farm storage. The last of their apples will be sold in April and May, good months for the fruit, they say, but a time for clearance because apple demand dips when new crops of watermelons and peaches become available.

Wait for Prices to Level Off

"Having our storage," says Bob, "we don't have to worry about competing with the prices of low-quality fruit. We can pick and wait for prices to level off."

In some years the storage has paid off in uniformly higher prices—as much as 50 cents to a dollar per bushel. Other times its only benefit has been to let them sell the whole crop.

For 30 years, Francis Fruit Farms has had what Bob calls common storage, where he can keep 7000 bushels of apples satisfactorily for as long as two months. This has been supplemented with refrigerated storage rooms in which he can hold 15,000 bushels, some for up to eight months. The temperature is maintained just above freezing and the humidity kept near 85% to preserve the fruit's high quality. A 10-ton refrigeration unit serves one of the rooms and two 5-ton units cool the other.

In the common storage, a 36-inch fan driven by a 1 hp motor exhausts air to prevent spoilage. Fresh air is drawn in through vents along the lower part of the wall. Average cost of handling and storing apples on the Francis farm is roughly 25¢ per bushel.

What Size Justifies Storage?

How big should a grower be before he invests in storage facilities? "I'd say in the neighborhood of 10,000 bushels a year," volunteers Bob Francis. "Possibly less. I sure wouldn't want to be growing this many apples without a place to hold them." □□

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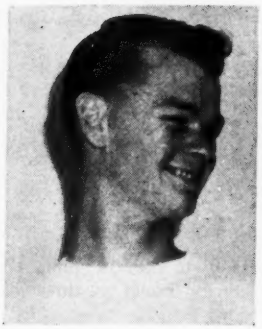
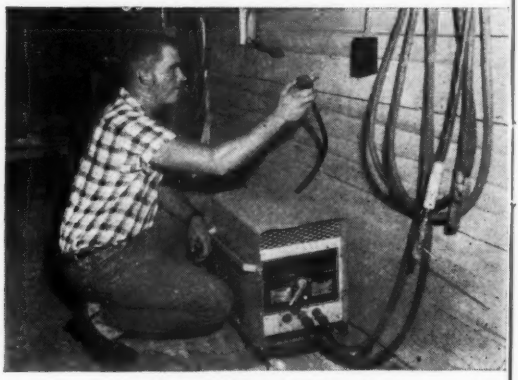


OSCAR UNDERWOOD, JR.
Alabama

DON NICHOLSON
Florida

HOYLE BROOME, JR.
North Carolina

JUNIOR PARTNERS



ELIJAH TOUCHTON—*Georgia*

Here are the 1961 Southeast State FFA

Time is almost here for Future Farmers to be packing their bags again and heading to Kansas City for their annual Convention. Among the thousands of young men who will assemble there will be some who are winners of state FFA Farm Electrification Awards. Each one of them, already $100 richer for his excellence in the study and use of electric power on the farm, will be hoping to be named for a national or regional award and an even bigger check from the National FFA Foundation.

Here are the vocational agriculture students who have earned these State Farm Electrification Awards in the Southeast. We salute them for their achievements in farming and living better electrically.

ALABAMA

Described as an accomplished electrician, Oscar Underwood Jr., a graduate of Pell City High, has constructed several demonstration displays since he began his study of electrification. Possibly his most unique display is a panel to illustrate use of a thermostat to control circuit breakers. He made a portable fan, added 16 electrical outlets in the Underwood home, installed a new water heater, and has accumulated a kit of frequently-used electrical tools. Using old ringer-type telephones, he has installed a home communication system that connects the residence, barn and meat-curing house.

FLORIDA

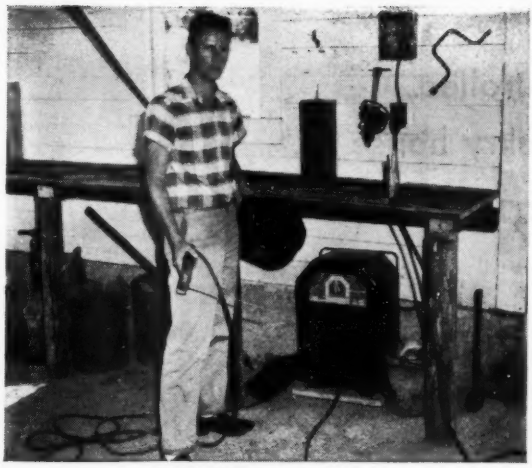
Winner of the state farm mechanics award last year, Don Nicholson of Quincy High has shouldered a lot of responsibility for the family's 300-acre farm since his freshman year, when his father died. He keeps 18 sows, has made extensive use of heat lamps. He has extended new lighting and motor circuits, and now has under construction a concrete-block farm shop building into which he is moving the tools and equipment he has accumulated. His teacher is Murray Langford.

GEORGIA

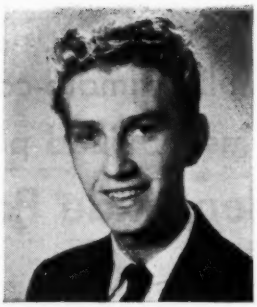
Study in vo-ag classes helped Elijah Touchton of Lowndes County High, Valdosta, see the need for improving electric service in his home and extending it to a newly-established farm shop. Starting from a new 100-ampere service entrance, he extended circuits for a freezer, washer, refrigerator and a water heater which he installed. He wired the shop building to provide separate circuits for lighting, an electric fence controller, welder, grinder and battery charger. His teacher is S. E. Dasher.

MISSISSIPPI

Partner with his father in the operation of a 160-



BERNARD KING—*Mississippi*



SONNY BLACKWELDER
South Carolina

BOYD SWITZER
Virginia

winners . . .

Farm Electrification Awards

acre poultry and cattle farm, Bernard King of the Pisgah School in Rankin County has converted an old milking barn into a farm shop. The building was rewired completely for 110 and 220-volt service. Bernard purchased an arc welder, with which he has made a variety of items ranging from metal farm gates to a big 4-wheel farm wagon. There is enough demand for the gates that he expects to make and sell enough to pay for the welder. Since June he has served as a vice president of Mississippi FFA. His teacher is P. E. Jones.

NORTH CAROLINA

Hoyle Broome Jr. of the Clement chapter, Autryville, began working with radio kits when he was a sixth grader, has developed such a keen interest in electricity and electronics that his father arranged for him to monitor a Saturday class in basic electricity at North Carolina State College. He has extended electric service to all farm buildings and put down an underground circuit for a post lamp and floodlights. He constructed a portable compressor, put an electric motor on a feed chopper, installed a milk cooler and electric fence. In the home he has installed an intercommunication system, a burglar alarm, photoelectric cell and relay, and built, for use in plant bed, a dehumidifier with humidistat control. Tools he has accumulated include electric drill, sander, volt-ammeter, capacitor tester, electric outlet-type work bench and other testing equipment. His teacher is J. A. Watson.

SOUTH CAROLINA

Sonny Blackwelder of Fort Mill High was graduated last spring after three years of vo-ag study in which he gained wide experience in wiring and electrical repair jobs. His activities ranged all the way from building a simple lamp and extension cord to wiring a home. He has installed a window air conditioning unit, electric welder and has made the electrical connections for a furnace. His teacher is H. M. McCallum.

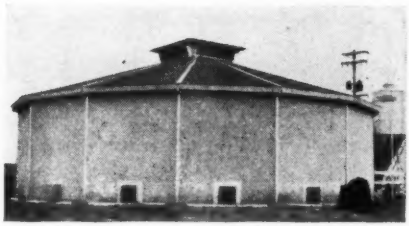
VIRGINIA

Boyd Switzer of North River High in Augusta County also has been busy extending the use of electricity about the farmstead. He wired the machinery shed, shop, and a new poultry house, then put up spans from a central distribution pole to bring service to these buildings. In the milking parlor, he installed infrared lamps for winter comfort. In the residence, he has added convenience outlets, 3-way switches, new light fixtures, wired the basement recreation room and wired for a dishwasher. Vice president of his chapter and the BAR Federation, he stands at the top of his class scholastically. His teacher is W. L. Simmons. □□

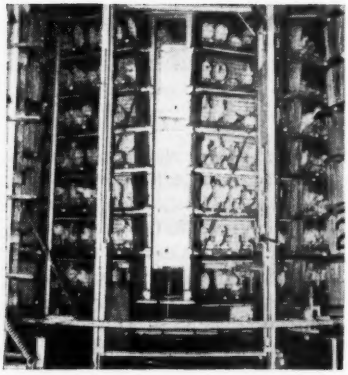
In this fully climate-controlled, highly-mechanized poultry house . . .

Hens Ride Perpetual 'Merry-Go-Round'

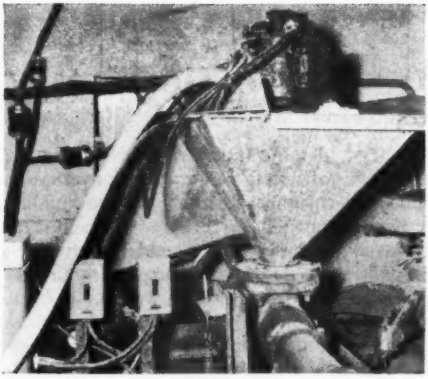
By RALPH W. HANSEN*



Poultry house is built of 14 prefabricated concrete panels, tilted in place. Vents at floor level are air exhausts; at roof peak is air intake.



Inside house, hens ride around on rails in six rings of individual cages, stacked seven high. Each bird gets about 0.45 sq. ft.



Liquefied feed is pumped to feeding troughs through pipe. Hens pass feed and water troughs for two minutes every hour.

Jim Helbig, an Arvada, Colorado engineer, began developing an automated poultry operation as a hobby, and from it has developed a prefabricated roundhouse that may be the new look in poultry laying houses.

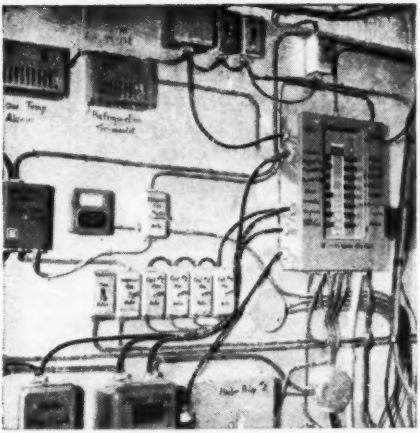
The pilot poultry plant in Arvada, built and operated by the Cyclo Manufacturing Co. of Denver, features automatic watering and feeding, automatic light and temperature control, and hospital-like sanitary procedures to prevent disease.

The house is 14-sided, with a 60-ft. diameter. Each hen is individually caged. There are six concentric rings of cages stacked seven layers high, providing space for 5500 laying hens in approximately 2800 sq. ft. of building.

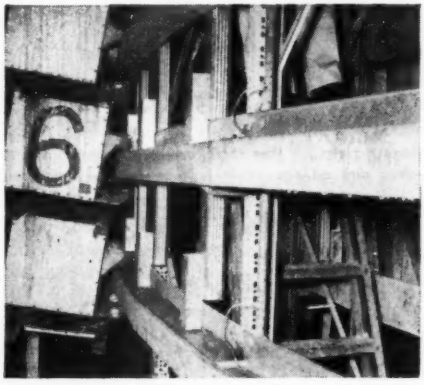
Birds 'Ride the Rails'

The new and unique part of the building is that the cages for these 5500 birds are set on a framework which rides on rails, so the birds, cages and all, make a merry-go-round-like circuit once every hour. The rotating center with birds weighs about 30 tons and rides on 32 ball bearings, but is easily powered by a ⅓ hp gear reduction motor.

As the cages rotate, the hens pass feed and water troughs once every hour. As they go by,



Control panel operates lights, air conditioning, feeders and other equipment for automated and environmentally-controlled house.



As hens swing by the feed and water troughs once each hour, they have two minutes to eat and drink. Troughs automatically refill as needed.

they are allowed about two minutes to eat and drink. Thus, all hens have an equal chance at food and drink. The feed is semi-liquefied, so both feed and water are pumped into troughs. Automatic controls keep troughs always full. Helbig plans to develop another system using dry feed also.

Keep Temperature 55-65° Year-Round

Everything in the house is mechanically controlled. The temperature is kept between 55 and 65° summer and winter. No auxiliary heat is required, even at 20° below zero. The high density of birds results in only about one square foot of wall and ceiling area per layer. A shaft in the center of the building exhausts air to keep the house well ventilated. During hot weather a refrigeration unit provides cooling to maintain the same temperature. The environment is completely regulated by electronic controls. The circular shape of the house and well-designed fresh-air vents keep an even distribution of air and maintain a uniform temperature in all areas.

Roll-Away Cages

As the eggs are laid they roll to the front of the cage, where they are picked up and recorded by the poultryman, who stands on an electrically-powered lift which raises him to the level of the higher cages. Automatic time switches require a 14-hour working day for the hens in the windowless house.

The cleaning system is very simple. A stationary scraper wipes the droppings from the trays under each tier of cages as they rotate. A conveyor carries the waste to an elevator which loads it on a truck. Cleaning is continuous, since the cages rotate all the time.

The continuous movement doesn't seem to bother the hens, as laying and death rates testify. Egg production has held at 85% or above of Grade AA, with a death rate so low it is insignificant. Rigidly-enforced sanitation procedures also help keep deaths down.

Designed for Air Conditioning

The choice of a nearly round house was carefully planned. The shape was chosen because it could provide the most economical and efficient space, primarily for air conditioning. It gives a minimum of wall and ceiling surface, and locating the air conditioning equipment in the center provides uniform distribution throughout the house. This design reduces the refrigeration load to the practical point. Helbig estimates the cooling equipment costs about 85¢ per bird.

The 14 wall panels are precast concrete insulated with styrofoam. They were tilted into place and roof installed. In a prefabricated house, the roof would be made of assembled sections also. Helbig estimates the cost of the house will be no more than for other types. On a per-bird basis, he estimates it at $4 to $5. The low cost of the building and very low space requirement per bird allow for the air conditioning and automatic controls at a total cost no higher than for most conventional houses without air conditioning. □ □

**Asst. Prof. Agric. Engrng., Colorado State Univ.*

SAVE TIME, MONEY: USE THIS COMPLETE FARM WELDING UNIT

● Here's an arc welder that's perfectly suited for the farm workshop. It operates efficiently on REA and all rural lines and has all the ruggedness and power needed on the farm. And the low price will really surprise you.

What's more, it's so easy to use. Just a little practice and you're ready to make repairs on the spot . . . save costly welding bills . . . get rid of time consuming trips to town. Just check these Marquette '500' features:

● **EASY-TO-USE:** Starts quickly . . . Gives a steady, surge-free arc. Settings are indicated for pipe thawing, arc cutting and arc torch use. Dual welding heat settings are plainly marked, giving exact amperage needed.

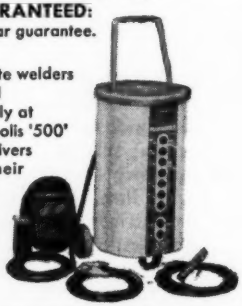
● **ECONOMICAL:** Marquette '500' is built to highest standards, yet costs *less* than most ordinary welders. No moving parts to wear.

● **WORKS ON LOW VOLTAGE:** Transformer gives full 25-180 Amp. capacity, even on low voltage power lines.

● **COMPLETE:** Marquette '500' comes complete with helmet, cables and wall receptacle. No extras to buy.

● **GUARANTEED:** Full 1 year guarantee.

Marquette welders are used exclusively at Indianapolis '500' Race. Drivers entrust their lives to Marquette welds.



MARQUETTE has complete line: *Get information on Marquette Arc Torch, Gas Welding Equipment, Rod Hopper, and Power King Battery Charger. Ask for new Farm Catalog No. 8405. Write to address below.*

MARQUETTE

MARQUETTE MANUFACTURING CO.
DIVISION OF MARQUETTE CORPORATION
307 E. Hennepin Ave. • Minneapolis 14, Minn.

Clean equipment lasts longer, and Cliff Emerson knows he doesn't have to stint on water, so he makes sure all equipment is kept mud and dirt-free.

Profit or loss in dairy?

Adequate water may make the difference

Proper planning of a water system can sometimes mean the difference between operating a farm efficiently with maximum production and convenience or operating one with considerable inconvenience and waste of labor.

An adequate water supply is a vital link in the operation of Cliff Emerson's 132-acre dairy farm in Wayne County, Ohio. Emerson recently had a new submersible pump installed to take care of his increasing water needs.

The 70 head of registered Holstein dairy cattle were just recently supplied with automatic drinking cups in the pasture, some 1000 feet from the source of supply. The importance of this water availability has already been determined by tests and surveys. Reports show that when water is available at all times to dairy cows, milk production increases from 10 to 22%. Although it is too

early to notice any substantial gains, Emerson feels proper field watering for his dairy herd eventually will result in a solid increase in milk production.

Replaced Reciprocating Pump

The new submersible pump was installed on the Emerson farm during the latter part of January, replacing a deep-well reciprocating pump. The old pump just couldn't keep up with daily demands for water which included the addition of an automatic washer and dishwasher. The new pump is a 1 hp model, delivering 10 gallons per minute at 80 lbs. pressure. The well itself is 135 feet deep, with the water level at 110 feet. A large, five-inch well casing was used so that a larger pump may be installed if needed in the future. A standard 42-gallon pressure tank, motor control box and accessories complete the water system. The old well is still maintained as an emergency water source.

A good, adequate-capacity water system is needed to supply the 65,000 to 75,000 gallons of water used annually on a farm the size of the Emersons', which their pump supplies for a few cents a day. The cost is insignificant when you consider the convenience and productivity an adequate water system makes possible for unhampered chore jobs.

Added Fire Protection

An additional factor, which had much to do with Emerson's decision to install a new water system, was the need for added water pressure and capacity for fire protection. The 10-gallon-a-minute capacity of the new pump meets the Underwriters Laboratories' recommendations: "An effective fire stream through a small nozzle (3/16-1/4") requires 8 to 10 gallons per minute . . ." Emerson has a sense of security now that he has fire protection for his farm.

Dairy is Prime Water User

Prime usage of the new water system on the Emerson farm is, of course, found in its dairy production. Besides supplying water directly to the dairy herd in the pasture, the water system cools a 1500-gallon bulk milk storage tank (180 gallons of water are used twice daily) without impairing the water supply. With the increased water pressure, it is now easy to clean the farm machinery (including four tractors) with a high-pressure water hose. In addition, cleaning the milking parlor used to be a time-consuming task with hand scrubbing. It's now done easily and quickly with a water hose. Emerson makes use of the pump's 80 lbs. of pressure by a direct connection to the pump discharge for this purpose, by-passing the storage tank.

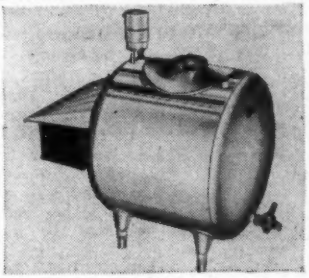
Automatic Home Appliances Need Ample Water

Mrs. Emerson likes the additional water pressure and capacity she needs for her household chores. A constant supply of water is available even when there is a heavy usage in the barn or milkhouse. Mrs. Emerson noticed a definite improvement in the operation of appliances such as her automatic washer and dishwasher, which are in almost continuous use, when the new water system was installed. □□

NEW *COMPACT* BULK MILK TANK COSTS LESS THAN CAN EQUIPMENT

For Diversified Farmers With Small Dairy Herds

DIRECT FACTORY PRICES



Now the price barrier is broken on farm bulk milk tanks — for the diversified farmer with a small herd. The new, small DUNCAN-COMPACT BULK MILK COOLER — made by makers of the famous ZERO Tank — gives you the labor-saving, time-saving, higher-milk-quality advantages of bulk operation. Enables you to *make the milk profit you want*, but can't get with a profit-eating can operation. Yet this DUNCAN-COMPACT *costs less than can equipment!*

SIZES START AS SMALL AS 100 GALLONS. Available with 3-A symbol. Vacuum model for present cow-to-can producers. Only 36 inches wide. Easy to install. Waterproof Urethane plastic foam insulation. Many other profit-making features.

DIRECT FACTORY PRICES AND FINANCE PLAN make it easy to own. Make payments out of increased milk profit. Write for FREE full information, prices, sizes, capacities, details of Finance Plan — today!

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WATER FILTERING and SOFTENING

Three-in-one unit filters, softens, removes iron, regenerates self while you sleep. Needs only occasional salt refill. Write:

OSHKOSH FILTER & SOFTENER CO.
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"EVERY BURKS HYDRO SUB SUBMERSIBLE PUMP IN OUR TERRITORY HAS EXCEEDED ITS RATED CAPACITY BY AT LEAST 18%"

This statement was made by George C. Carter, president of C & B Pumps, Inc., Burks distributor in Lorenzo, Texas, after more than 50 NEW Hydro Sub Pumps had been installed in his territory.

One of these satisfied BURKS Hydro Sub owners wrote, "I would highly recommend this pump to anyone," adding that his Hydro Sub is providing more than enough water for all household uses, lawn sprinklers and the irrigation of an acre of ground.

What makes the BURKS Hydro Sub Pump so popular in George Carter's area?

"BURKS Submersibles offer the best engineering ever seen in a pump of this type and they're backed by BURKS' 24 month guarantee," he explains. "We haven't had one service call on any pump sold to date," he added.

For a water system that will give you long, trouble-free service, see your local BURKS dealer about installing a quiet, dependable Hydro Sub pump. Remember, it's backed by Decatur Pump Company's 47 years experience manufacturing quality pumps.

DECATUR PUMP COMPANY
2750 NELSON PARK ROAD, DECATUR, ILLINOIS

Plastic-covered electric heating tape is easily wrapped around exposed pipe in caged-layer house. Thermostat is adjusted to start tape heating whenever temperature drops near freezing.

Don't let frozen pipes freeze egg production

Egg production plummets when hens don't get enough water, as could easily happen if water pipes freeze this winter. Probably the surest and simplest method of protecting against poultry-house freeze-ups is the use of electric heating tape or cable.

The plastic-covered tape is ideal for protecting pipes, since it can easily be wrapped around the pipe in a spiral design or just taped to the pipe in a straight line. Regular friction tape will hold it in place. Lead-covered cable can also be used in this manner.

Choice of wattage per foot of pipe must take into consideration such factors as climate, protection from wind, normal indoor temperature if pipe is indoors, and pipe size. A thermostat control is a "must" for economical, complete protection. Thermostat can measure either air temperature (as in accompanying photo) or, better yet, pipe temperature, with the thermostat built into the tape and in direct contact with pipe.

Economy of operation can be increased greatly, especially on long runs of exposed pipe, if some type of insulation is put on the pipe after heat tape or cable is installed. Asbestos paper or asbestos sectional pipe covering fills the bill perfectly.

Heating tapes and cable come in various lengths, from 3 feet on up. Units 500 watts or less run on 115 volts—larger units need 230-volt service.

Water troughs in poultry houses should also be protected against freezing. Heating tape or cable can usually be laid underwater right in the bottom of the trough. Some poultrymen prefer to tape the cable to the underside of the trough. This simplifies cleaning and also allows cable to remain installed year-round.

Here are some hints for tape or cable installation:

1. Avoid crossing a section of tape or cable over itself—overheating may result.
2. Never cut or splice a tape or cable—a shortened cable will become too hot and may burn out. Spliced-on extra lengths will not deliver heat needed.
3. Some plastic tape coverings are brittle when cold. Warm tape before installing or removing it. □ □

Dress up your home for fall!

Crisp October days inspire us to bring some of Nature's color into our homes. What better way to do this than with colorful, practical slipcovers and draperies—and what easier way to get them than by making them yourself!

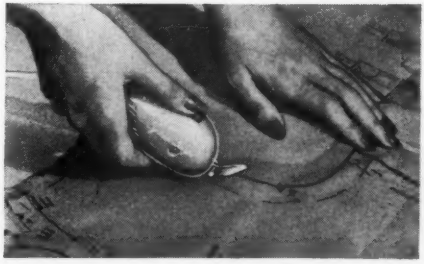
(Please turn to page 21)

Appeal of pretty bedroom *below*, starts with a fabric in a lovely bold pattern. Used with imagination, it is easy to make into slipcover, bed spread and swag draperies.

Dress up your house for Fall...

If you have a teen-age daughter, suggest that she redecorate her room and use a scheme something like this. Dust ruffle, of solid green sailcloth, is held firmly in place when stitched to muslin cover over springs on bed. Little shamrocks on white background make cafe curtains, spread, seat cover, trim for lamp and dressing table. White organdy dressing table skirt and ruffled curtains at window are frothy and delicate. Best of all, everything can be tossed in washing machine! Here's what you do: using dinner plate as guide, trace scallops with dressmakers' chalk on wrong side; cut muslin lining to match. Stiffen cuff on dressing table skirt with buckram lining. Buttons covered in green not only serve as trimming but are practical for fastening cafe curtians over rod. Paint window wall light blue, rest of room white, and you'll have a room worthy of a picture.

These lightweight, convenient electric snippers are the latest cutting aid for the home seamstress. Less than 6 inches long, they are compactly designed; high quality blades insure accurate cutting.



New electric sewing machines have so many convenient attachments, they really do the work for you. For instance, a buttonhole maker will quickly finish off the buttonholes for the cafe curtains (*left*). You can set a dial for a blindstitch and hem all raw edges by machine. The cording foot attachment will help you stitch close to the cording which borders the scalloped edges.

If you want to use some of the easy-care fabrics for slipcovers and curtains, you should observe some of these tips:

* Thread tensions on both top and bottom should be set light. Learn how to do this at the time you purchase your sewing machine, then you'll easily make the adjustments necessary for the type of fabric you are using.
* Be sure linings and other construction details you are using are shrink-proof, otherwise they may not fit after washing.
* Test seam on swatch of fabric and run sewing machine slowly and evenly. When stitching on 100% synthetic fabric, hold it smoothly in back and in front of presser foot for a flat, even seam. To prevent puckering at seam, do not pull fabric.
* Press as you go and use recommended iron temperature for type of fabric you are sewing.

Dress up your house for Fall...

Quilts still have charm, especially for the bedroom furnished with a tester bed. Our Grandmothers made quilts entirely by hand, but with the quilting foot attachment on our sewing machine, we can make one in no time at all and with little effort. A new technique for dividing quilt into blocks, then sewing the blocks together, makes the quilt easier to handle. Each finished block measures 10½" square; use fabric scraps which you have collected and they may be in any light or dark hues. A bed sheet makes an ideal backing. Place this with filling of a lightweight cotton blanket and face together, working on large flat surface. Hand baste at six inch intervals, then draw a light chalk line on true diagonal from upper corner. Using this as your guide, stitch with quilting foot attachment. Sew blocks together. Bind edges with prepared quilting binding (2¼" wide strips of fabric) and stitch to face of quilt; turn to back, turn edge and slipstitch by hand. Once you have mastered this easy block technique, you'll find it adaptable to an infinite variety of pleasing designs.

Cooking with Herbs

It is possible to transform a dull and common dish into an exciting one by the addition of a delicately flavored and aromatic herb. Don't be afraid you won't know how to use them—just remember that too much of anything is not good. This is particularly true when it comes to adding herbs in cooking. Use a light hand and you'll get delicious results.

A hot and cold bath for dried herbs brings out their flavor. Put amount you are going to use in a tea strainer. Dip them briefly in hot water, then in cold water before using.

BASIL BUTTER

½ cup (one stick) butter, at room temperature
2 teaspoons lemon juice
2 tablespoons chopped fresh basil or one teaspoon dried basil

Cream butter with wooden spoon until soft. Add lemon juice and basil and work mixture until thoroughly blended. Store, covered, in the refrigerator until ready for use. Use on top of poached eggs, as a spread for hot biscuits, on freshly cooked vegetables and on top of fish. Eggs may be fried in basil butter.

HOT SLAW

2 eggs
¼ cup water
3 tablespoons vinegar
½ teaspoon salt
¼ teaspoon powdered dry mustard
2 tablespoons sugar
¼ teaspoon celery seeds
1 tablespoon butter
1 pint finely shredded cabbage

Beat eggs, add water, vinegar, salt, mustard, sugar, and celery seed. Cook over low heat, stirring frequently until thick. Stir in cabbage and mix well with the dressing. Cover and heat a few minutes. Serves 4.

CHILI CON CARNE WITH CARAWAY SEEDS

1 pound ground boneless chuck
1 large onion, minced
1 clove garlic, minced
3 tablespoons butter or oil
1 8-oz can tomato sauce
1 6-oz. can tomato paste
½ teaspoon celery salt
¼ teaspoon crushed red pepper
½ teaspoon caraway seed
1 bay leaf, crumbled
1 tablespoon chili powder
¼ cup chopped fresh basil or one tablespoon dried basil
1½ teaspoons salt
1 pint cooked chili beans (or one can)

Saute beef, onion and garlic slowly in hot butter or oil. Add tomato sauce, tomato paste and seasonings. Continue simmering over low heat about ten minutes. Add the beans, cover and let simmer one hour or longer. If additional liquid is needed, add beef bouillon so mixture has the consistency of soup. Serves 4.

Try these popular herbs, too:

Allspice — Use in water for poached fish or shrimp; in fricassee chicken, stews, for pot roasts and in soups, especially in green pea and ham soup.

Dill — Use in cheese, fish, meat dishes; on buttered potatoes and in cabbage, cucumber, green and seafood salads. Notable in sauces for fish.

A COFFEE MAKER THAT COUNTS THE CUPS!

See that indicator in the General Electric Peek·A·Brew® Coffee Maker? It tells at a glance how much water to use as you fill, and how much coffee is left as you pour. Perfect coffee, too, 3 cups or 10, strong, medium or mild. Coffee Maker shuts off automatically, keeps coffee hot. No watching or timing!

Great for "coffee breaks" on the farm! See the Peek·A·Brew Coffee Maker at your General Electric dealer's. General Electric Company, Portable Appliance Department, Bridgeport 2, Conn.

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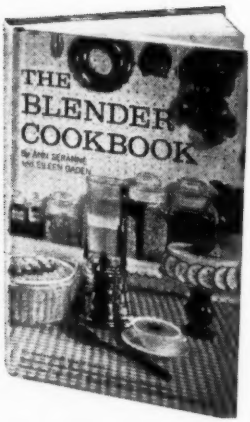
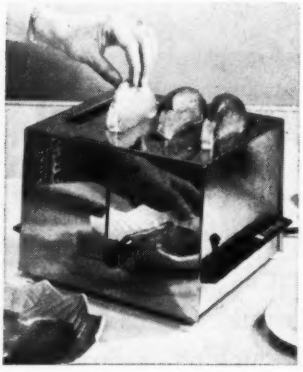
GENERAL ELECTRIC

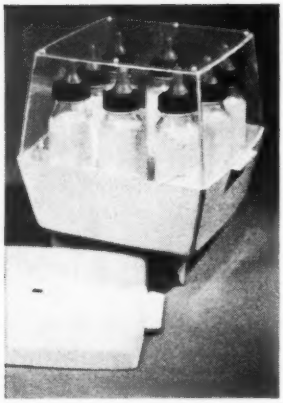
New Household Helpers...



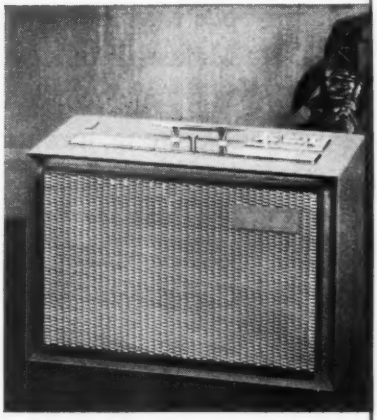
THIS COOKBOOK *will help you to get the full use out of a wonderful appliance—the electric blender. Many people who own one do not know all of the things it can do. If you have been wondering about it, too, this may well be your answer. Written by two experts, it contains recipes for such varying dishes as "no-curdle" Hollandaise sauce, homemade sweet butter, flavorful jams, jellies and chutneys, all preparations done in a matter of seconds in an electric blender. It includes recipes for main dishes, soups, breads, desserts and beverages, all of them unusual and appealing. (THE BLENDER COOKBOOK, by Ann Seranne and Eileen Gaden, Doubleday & Co.)*

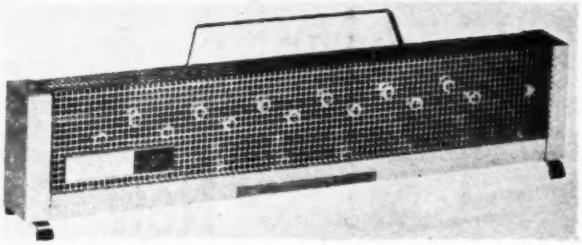
TOASTER *which browns either four slices of bread at one time, or just two—and does it automatically. Compact, square design saves storage space. A pair of combination toaster-covers and toaster-servers comes with the appliance. Wide slots in toaster will permit you to toast muffins.*





STERILIZER (above), *for baby bottles will take care of 8 bottles at one time. Aids in preparation of the formula and warms one bottle at a time—or other baby foods—as needed. May also be used as vaporizer or humidifier for baby's room. Made of lightweight plastic and compactly designed, it shuts off automatically.*





ELECTRIC HEATER, *26" long, might well be the inexpensive answer to many take-the-chill-away problems in your home. Only 7½" high and 4½" deep, it will fit in small space near baseboard, even in a small room. Requires only 1,000 watts to quickly give warm glow in any room. Has convenient carrying handle and feet with rubber tips to hold it secure on any surface.*

MIXER *with 4-quart mixing bowl gives ample capacity for family-sized mixing chores. Clearly marked speed action is varied for combining many types of foods. Wide choice in attachments is available, including an ice cream freezer. If you want one in color to match your kitchen decor, this choice is also available to you.*

◀ **AIR PURIFIER** *will clear an entire room of stale air in about five minutes. This revolutionary new appliance has three filters in one: an aluminum filter to remove large dust particles—an electrostatic precipitron to take out dirt and pollen—activated charcoal to remove odors and other impurities. It has finger-tip control panel, high and low settings, and a warming element to take chill from air on cool days.*

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ELIMINATE IRON, SULPHUR and water-borne disease bacteria with a CD PACK® which combines: EVERCLOR automatic chlorination to kill bacteria...oxidize iron and sulphur.
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EVERPURE superfiltration to make water sparkling clear . . . remove chlorine, bad tastes, and odors.
Used on farms everywhere—for the best water in the world!
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Complete FARM FEED MAKER

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New ROL-N-MIX

Now one low cost, compact unit provides all the basic equipment needed to make automatic feed making and feeding a reality on the farm. A size for every feeder. Also available in portable, P.T.O. models. Write for free literature.

Write for Free Literature

PEERLESS EQUIPMENT CO., INC.
Dept. 616, Joplin, Missouri

this dryer saves you ironing!

New KELVINATOR with Special Wrinkle-Free Drying

Dryer Model DE-700

Here's why Kelvinator brings you so much value!

Kelvinator doesn't waste money making costly annual model changes—mere "change for change's sake." Instead, Kelvinator concentrates on making appliances more useful, more dependable and more economical to operate. Just as soon as improvements are tested and approved, they are introduced. Because of this policy of Constant Basic Improvement, you are always sure of the newest with Kelvinator.

Super-Speed, Triple-Safe Drying, Too!

You iron far less when this new Kelvinator dries your clothes! It smooths and fluffs away wrinkles with a special cool tumble at the end of each drying cycle. Many things need only "touch-up" ironing or none at all.

And for wash-wear fabrics, Kelvinator provides a special cycle with a special heat that sheds wrinkles, but keeps in pre-set creases!

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Kelvinator is fast and efficient, too . . . you can dry clothes as fast as you wash them. Available for 115 or 230 volt current. Save time and work with this new Kelvinator dryer!

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Research Notes

By J. P. SCHAENZER

Washing eggs in water containing from 5 to 10 parts per million of iron increases the rate and extent of spoilage.—WESTERN UTILIZATION LAB., USDA, J. A. GARIBALDI AND H. C. BAYNE

Electric heating cable rated at 3.5 watts per foot is used by many Illinois hog raisers to warm the floors of farrowing houses. From 30 to 40 watts per sq. ft. is recommended.—UNIV. OF ILLINOIS, A. J. MUEHLING AND D. R. DAUM

A pneumatic plastic (bubble) greenhouse, 16 x 52 ft., using a 16-in., ¾ hp fan for inflation and ventilation, withstood 30 mph winds, 3 to 4-in. snow loads, and took 930 KWHrs to operate 3 months.—MICHIGAN STATE UNIV., E. A. KAZARIAN AND J. D. DOWNES

Electric insect traps shielded from prevailing winds are more efficient in collecting insects than those in more exposed locations.—TEXAS A & M COLLEGE AND USDA, JOE P. HOLLINGSWORTH

Farms decreased 1,078,774 in number from 1954 to 1959. The remaining 3,703,642 farms increased an average of 60 acres in size during the 5 years.—U.S. CENSUS OF AGRICULTURE

According to the results of 224 tests, properly-processed milk should keep 5 days at 50°, 10-15 days at 41°, and 20 or more days at 35°.—UNIV. OF KENTUCKY, W. E. GLENN

Lifting 50 gallons per minute of liquid manure 7 feet or up a 45° angle with an 11-ft.-long, 4-in.-diameter auger running at 1750 rpm will require 1 horsepower.—UNIV. OF ILLINOIS, H. H. KLUETER

Frozen and stored precooked ham and oven-fried chicken were less palatable than samples frozen raw and cooked when needed.—UNIV. OF ILLINOIS, BARBARA H. MCGRATH AND FRANCES O. VAN DUYNE

It took 1.26 KWHrs of electricity per bushel to dry 670 bushels of cribbed ear corn from 25% to 17% moisture content in 25 days with forced unheated air at the rate of 5 cfm per bushel.—UNIV. OF MISSOURI, D. B. BROOKER

A density of 25 watts of heating cable per sq. ft. of floor area in an 8 x 10-ft. brooder adequately accommodated 1000 chicks.—UNIV. OF MISSOURI, K. L. MCFATE AND M. M. JONES

On irrigated land, 20,000 corn plants can be grown per acre on sandy to clay loams with 120 lbs. of nitrogen, but only 15,000 plants on silty clay loams with 90 lbs. of nitrogen.—GEORGIA AGR. EXP. STATION, BOSWELL, ANDERSON AND STACEY

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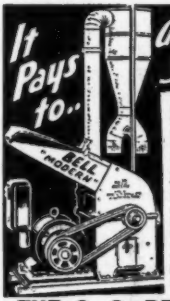

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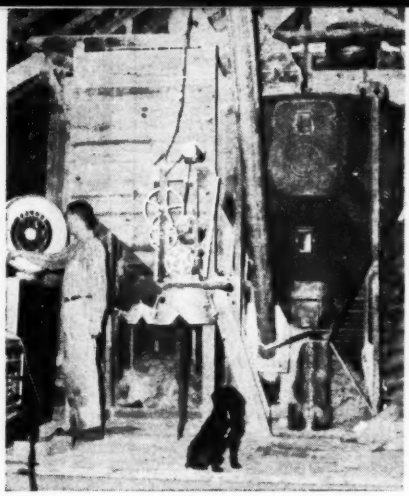
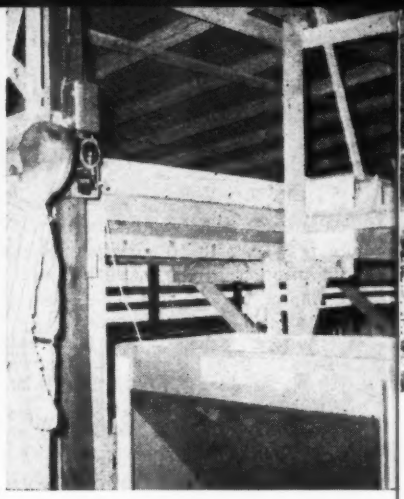


LEFT:
Batch of cornmeal is weighed out by Roger Williams before going into feed mixer at right. Wooden storage bins in background are auger-filled.



RIGHT:
Time clock controls feeders in poultry house. Nest boxes, visible above feeder hopper, were installed with future mechanical egg collection in mind.

He's E X P A N D I N G His Poultry Setup

Roger Williams, a young, energetic commercial table-egg producer of Gainesville, Florida, has a lot to say about his on-farm feed-producing program. "My feed mill is the key to my entire poultrying existence," he says. "Without it, I wouldn't be able to expand, or even be in business."

Williams himself is somewhat unusual. He has climbed from 5000 to 20,000 layers practically overnight, and is now aiming for a 40,000-bird flock—all Leghorns. There's no secret to his success. He's a hard worker, handy with tools, and has a keen mechanical knowledge. He does all his own technical work, from figuring out new ways of making daily chores easier through automation to plumbing and wiring. He designed and set up his own farm-size feed mill which operates from a single switch panel and cost him less than $5000 complete.

His feed mill is housed in a small building across the driveway from his home, conveniently located for incoming shipments of concentrates and grain, yet only 100 yards from the laying houses.

He refers to the feed mixer as his most important piece of equipment. In addition to the 4-ton-per-hour mixer, he has scales with a 4500-lb. capacity and a 15-inch hammermill.

The only grain used in the feed is corn, which Williams buys according to season and lowest quotation. At the farm, he dumps corn into a circular concrete pit equipped with an auger that feeds directly into the 30-ton storage bin (storage capacity is presently being doubled). With this pit he can unload 25 tons of corn into undercover storage within 45 minutes.

Concentrates are stacked in bags on the platform beside mixer. Making up 1-ton batches, Williams

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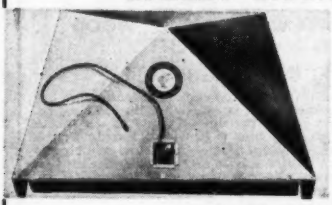

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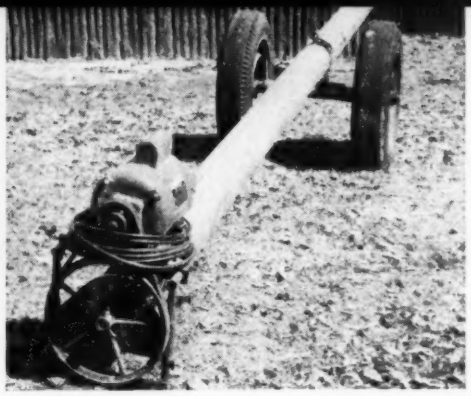
Corn is dumped into concrete pit and augered into storage bin inside feed milling building.



Portable auger, 21 feet long, 6-inch diameter, and powered by 1½ hp motor, is used by Williams to transfer bulk feed.

weighs out 1500 lbs. of cornmeal and dumps five bags of soybean meal concentrate into the mixer. When thoroughly mixed, he augers directly from mixer into his 8-ton homemade bulk truck for the short haul to bins at the laying houses.

It takes Williams 15 minutes per ton for grinding, mixing and dumping into his bulk truck. Total time for the entire operation, including grinding, mixing and filling the 10-ton bulk feed bin beside each house is 30 minutes per ton. New improvements will lower the required time. Bulk feed tanks auger directly into mechanical feeder hoppers.

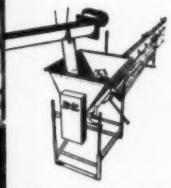
The pole-type open-air houses, of his own design, measure 30 x 240 feet and have poultry-wire sides. Each house is equipped with a mechanical feeder and 1000 feet of feeder track. Although feed is presently being augered from bulk bin stationed beside each mechanical feeder, he intends to install micro-switches to make this operation automatic, feed flowing into feeder hopper only when supply is low in hopper, then shutting off automatically when hopper is full. C. L. STRATTON

Cut Feeding Time from Hours to Minutes

Roto Tube
AUTOMATIC BUNK FEEDER

Back-breaking labor is reduced to a mere push of a button. Roto-Tube distributes planned amounts of feed the entire length of the bunk, lets you feed more cattle. Corn, silage, haylage, protein are well blended with no separation of fine and coarse material.

Roto-Tube's round holes are just the right size to discharge feed in uniform amounts. Each hole is progressively lower than the preceding hole so piles of feed are the same at the foot as at the head of the bunk. The tube can be rotated to lower the holes and increase the discharge. When not in use, rotate the holes to the bottom for protection from rain and snow.



A simple, one-lever control diverts feed from one side to the other. Permits the same or different rations to be fed on either side of the bunk.

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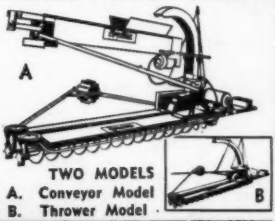
Most silo unloaders work fine until the silage freezes. This ruggedly built Roto-Matic is specifically designed to cut even the hardest frozen silage. Yet the perfect balance of this machine gives a perfect cut all the time, keeps a constant and even pressure against the silo wall.



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ELECTRICITY—The Newest Home Heat

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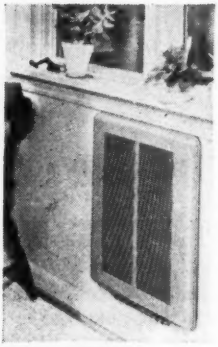
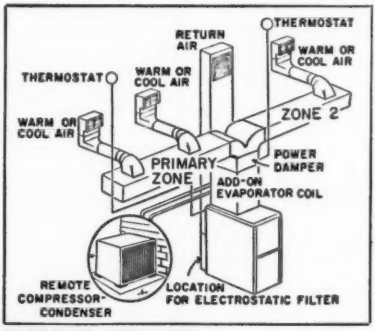


WALL INSERT



ELECTRIC FURNACE

One icy winter day thousands of years ago, one of our early ancestors trudged home to his cave after a long hunt. His "home" was smoky, sooty, hot near the fire and cold five feet away—and he had some job keeping that fire going! But he didn't mind. Flame heat was the only warmth he knew, and he was glad to have it!

Today, many people are *still* using flame heat to warm their homes. But there's a newer type of heat that far surpasses flame for keeping a home comfortable and healthful, even in coldest weather. It's electric heat, now available to all who want the finest in home comfort.

With electric heating, individual room thermostats provide perfect temperature control without overheating on mild days, dried-out air, flame hazards, smoke, dirt, or an ounce of work.

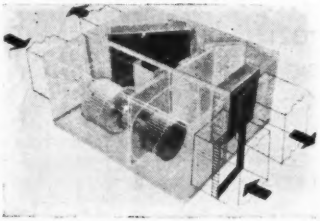
Types of Electric Heat

There are two major methods of heating homes electrically: resistance and heat pumping. Resistance heat is produced by passing a current through a resistant metal, usually a wire—your electric toaster is a good example.

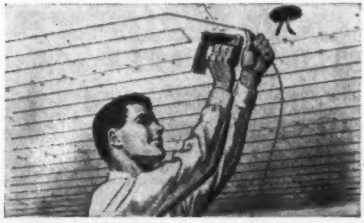
Resistance heat usually produces a combination of radiant heat and convection currents. Radiant heat is like that given off by the sun—invisible rays which must strike an object before warmth is felt. Convection currents are made of continually rising warmed air.

WALL HEATERS, either recessed or mounted on the wall, usually produce both radiant and convection heat. Convection currents from this type of unit placed directly under a cold window area will blanket it off. Heating elements for wall heaters may be made of resistance wire or a special metallic film coated on the back of a glass or quartz sheet. The latter produces a highly-radiant heat.

PORTABLE



HEAT PUMP



CEILING CABLE

OTHER UNIT HEATERS, similar to wall heaters, can be mounted in and on ceilings and floors. Ceiling-mounted units combining heater, fan and lamp are especially well-adapted to bathrooms and kitchens. A long, narrow floor insert heater is made especially for installation beneath large window areas. Portable heaters are used for supplemental or spot heating.

BASEBOARD HEATERS consist of heating elements mounted in narrow enclosures that replace existing baseboards. They are practically hidden, produce even heat, and can be painted to match any decor. Because they can be installed with very little remodeling, they are ideal for older homes. They produce both radiant and convection heat.

ELECTRIC HEATING CABLE, when used to warm a home produces heat that seems to come from nowhere. A single strand of insulated resistance wire is laced back and forth across ceiling or floor before the final layer of plaster or finishing concrete is applied over it. The only part visible is the thermostat on the wall. Heating cable produces a highly-radiant, sun-like warmth.

ELECTRIC FURNACE is for those who prefer a central heating system but still want the convenience, cleanliness and safety of electric heat. A central unit has banks of heating elements from which warmed air is forced through ducts to individual rooms. The duct system can also be used in summer for central air conditioning.

HEAT PUMP combines winter heating and summer cooling in one packaged system. One section of the unit is connected, through ducts, to indoor air; the other section is connected to outdoor air, water or earth. Any of these substances normally contains enough natural heat to warm a house. During winter, the heat pump simply draws heat from the outdoor substance, and, through a heat exchanger in the unit, pumps this heat into the house. In extremely cold climates, a few resistance elements are added to supplement the heat pump's output. In summer, the unit automatically reverses direction, pumping heat out of the house. A ductless heat pump that looks much like a window air conditioner is often used for individual rooms. □ □

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For beautiful house plants . . . Use Artificial Lighting

By W. H. WILFONG

If you want to grow beautiful plants in your home, use artificial lighting. Light plays so important a part in plant growth that the scientific name for the process is "photosynthesis," which comes from the Greek word, photos, meaning light.

Commercial growers are making wide use of artificial light to promote or retard growth of flowering plants. Some plants, like chrysanthemums, delay blooming if given longer hours of light; others, like tuberous begonias, bloom earlier with longer hours of light. Still others, such as carnations, apparently are not affected.

Hobbyists are using artificial lighting very successfully on house plants. African violets grow exceedingly well under artificial light. They have no real rest period and will bloom continuously if cared for properly. Artificial lighting will keep plants growing, putting out new leaves and more flowers.

What Kind of Lamp Bulbs?

Tungsten-filament and fluorescent lamps are the ones most commonly used in floriculture and horticulture. Tungsten-filament incandescent bulbs used in growing plants vary in size from about 60 watts to 500. In rooms with low ceilings, the smaller size lamp bulbs are necessary to get good distribution; in a large, high room fewer large-wattage lamps may be more economical.

In growing plants indoors, fluorescent lamps have the advantage of higher light efficiency with low heat. Although there are seven colors of white in this group of lamps, the daylight and standard cool white lamps are recommended for this service. Fluorescent lamps most commonly used are medium bipin base—15, 20, 30 and 40-watt sizes, Mogul bipin base, 2½ inches in diameter, 90 watts. The 4 and 8-foot lengths are most economical.

How much light is needed to grow plants? The answer depends upon the variety of plant. The range of outdoor daylight may go as high as 10,000 foot-candles. In a greenhouse, the average is much less. Plants of many varieties have been grown to maturity in artificially lighted growth chambers at from 300 to 2500 foot-candles.

Start Seeds and Cuttings

Mixing fluorescent with incandescent light gives better results than fluorescent lamps alone. This is accomplished by supplying about 10% of the light with filament lamps. This is a ratio of about three fluorescent lamp watts to one of filament.

Home gardeners who do not have access to a greenhouse can start plants from seeds or cuttings. Propagating equipment, using fluorescent lamps as the source, can be bought in a variety of sizes and types or made inexpensively.

To start seedlings, a 2-lamp or 3-lamp 40-watt fixture is recommended, mounted about one foot above the trays or flats. The interior of an enclosed cabinet should be white to keep the light in circulation. □ □

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SODDEN THOUGHT: It SEEMS odd that a man who is TOO scared to go to a dentist will STILL race a locomotive to a crossing. . . . Have you heard the story of the reformed gangster who studied SPIRITUALISM? Seems he went from BAD to MEDIUM. . . . OVERHEARD: "In the FUTURE women won't buy food in containers UNLESS they can see what's inside." "What about EGGS?" . . . NO wonder women live LONGER than MEN. LOOK how LONG they are GIRLS. . . . IF you DON'T THINK people LISTEN to what you SAY, just TRY repeating a joke you TOLD them a MONTH ago. . . . JINGLEJOLLY DEPT.: POEM TO BE PINNED TO A DOOR—THIS door is REALLY a gentle thing—It WOULDN'T hurt a flea. In fact it STANDS quite quietly And WOULDN'T bother me. If ONLY all you girls and boys Would treat it with SOME care, THEN all of us around it Could work—NOT pull our hair. SO DON'T SLAM IT! ! ! ! (Author Unknown). . . . EVERSTOPTOTHINK? SOME people can TRACE their families back 300 years—but they DON'T KNOW where their kids ARE at NIGHT. . . . Ma Larkey says: "TOO many people are WORKING for money that's ALREADY spent." . . . Via Jerome Beatty in *Saturday Review Of Literature:* A beautiful lady from South of the Border dieted herself BACK to her FORMER svelteness. NOW her proud husband calls her his "METRECALI ROSE." . . . We heard a gal clerk in a department store make THIS remark to a co-worker as they nearly trampled us at FIVE O'CLOCK quitting time: "My, AREN'T we a bunch of EAGER LEAVERS!" . . . SNICKER-SNORT-OF-THE-MONTH: Two boys were—naturally—discussing girls. Said one, "WHY do you make SUCH a fuss over girls? Don't you KNOW a girl is ONLY a RAG, some BONE and a HANK of hair?" "So," said his friend, "shake hands with a happy junk-dealer." . . . About the only thing we can think of that would be WORSE than paying INCOME TAX is NOT having to pay one. . . . PARTING THOUGHT: Debt is something a man gets into when he SPENDS as MUCH as he TELLS his friends he EARNS. . . . Your pun-peddler—DUFFY

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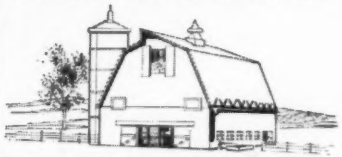

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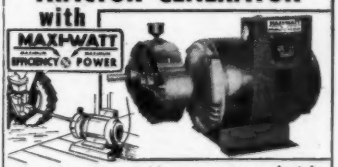

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Manage Your Pastures Better

with electric fences

By R. K. SMITH
Rural Electrification Specialist
Mississippi Agricultural Extension Service

Electrically charged wires or "electric fences" are in wide use on livestock farms. There are several reasons. The electric fence can be erected in less time and with much less money than a three-strand barbed wire fence. Often, it even is cheaper to erect an electric fence than to repair an old fence.

Another good feature of electric fences is that they can be taken down and moved with a minimum of difficulty. Many farmers use them around temporary grazing areas or to divide their pastures temporarily for more efficient management and utilization.

The big thing to keep in mind about electric fences is that they must be properly installed to give satisfactory service. This is not difficult to do. It involves taking a few simple precautions:

1. Buy an *approved fence controller.* Do not try to build your own or try to get by without one. A good electric fence controller is essential.

2. When you put the controller into use follow the instructions of the manufacturer.

3. For best results, train your livestock with electric fence in a small enclosure before turning them into a large field surrounded by only one or two wires.

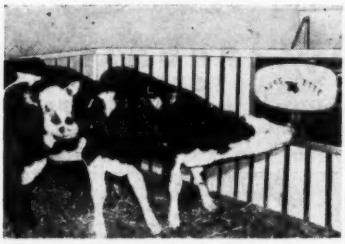
4. The charged wire should be about two-thirds the height of the animal. When cows, calves or hogs are kept in the same area, two wires may be necessary.

5. Be sure the controller is grounded.

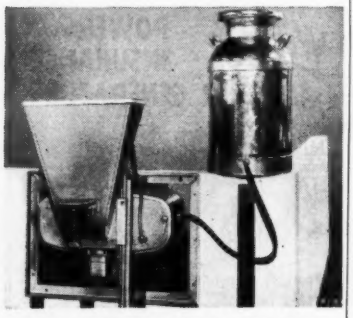
6. Use good insulators, especially on iron posts.

There are two kinds of controllers—battery and electric. The battery type can be used where electric service is not available. □□

NURS-ETTE
Automatic Calf Feeder!
THE MECHANICAL
NURSE COW FOR BOTH
DAIRY AND BEEF CALVES



HANDLES UP TO 15 CALVES PER UNIT . . . Automatically mixes, heats and meters one feeding per each timed cycle. Simply connect to water, electricity and fill with calf food.



FEEDS LIQUID MILK OR CALF FOOD FORMULA . . . Just a flick of a switch converts the unit to a dispenser of surplus, unsaleable or other fluid milk . . . from any type of can.

Write for complete information
K&K manufacturing inc.
1001 Washington Ave. So.
Minneapolis 15, Minnesota

Advertisers

in this issue . . .

Southeast Edition

Whenever you need further information about electrical equipment and appliances, you can depend upon the Manufacturers who are advertising in this magazine. We have indexed here for your convenience in alphabetical order the Manufacturers whose advertisements appear in this issue.

When writing to these Manufacturers be sure to mention you saw their advertising in ELECTRICITY ON THE FARM Magazine.

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If you are unable to get information about the particular equipment you require from our advertisers as listed above, our Reader Service Department will be glad to help you. As a reader of this magazine you are entitled to this information service free of cost.

All the water you need—for just pennies a week!

Now you can buy a Goulds pump on easy terms . . .

Do you know a thirsty milk cow can drink as much as 25 gals. of water *a day!*

Yet, milk cows that do get all the water they want, produce more—*10 to 22 percent more!*

It's the same story with other livestock. Meat cattle "fatten up" by 10 to 20 percent more. Poultry give 8 to 10 percent more eggs.

How are you going to provide *enough* water to take advantage of such gains? Do it with a Goulds Water System *exactly fitted* to your specific needs. Goulds has all sizes, all kinds—to put plenty of water in *every* trough in your barnyard!

Afraid you can't quite see your way to it just yet? No need to put it off any longer—*you can pay for your Goulds Water System on easy terms!* Pay as little as a few dollars per month no matter what model you choose.

Don't you think *that* needs looking into? Check with your Goulds Water Systems dealer or get the name of the dealer nearest you, along with a free booklet, by sending in coupon below.

GOULDS PUMPS

Send me my free copy of your new GUIDE TO WATER SYSTEMS and name of my nearby EASY TERMS Goulds Water Systems dealer.

Name.....

County..... Route.....

Town..... State.....

GOULDS PUMPS, INC., Dept. EF-101, Seneca Falls, N.Y.

DR H H YOUNG - HEAD
VA AGRI EXPERIMENT STA
BLACKSBURG VA
259-SC

FOR

- HOMES
- FARMS
- BUSINESSES
- SCHOOLS
- INDUSTRIES
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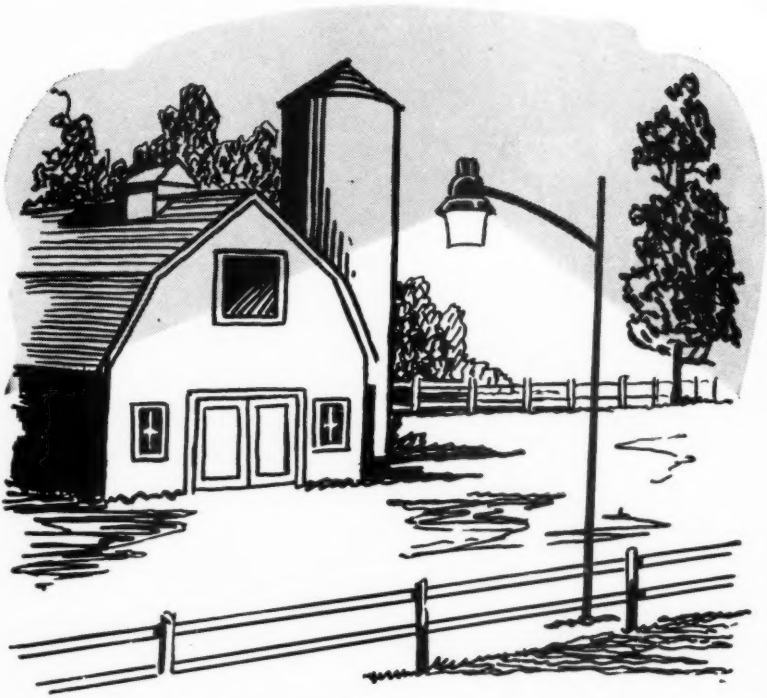
- LODGES
- ROADWAYS
- PARKING LOTS



Silent Property Protection with DUSK-TO-DAWN Lighting

Install a Dusk-To-Dawn light on your farm today and enjoy the peace of mind, protection and convenience of automatic night-time lighting. This service is yours for only $4 monthly, and the fee includes installation of the light—and a pole if necessary—its maintenance plus the electricity it uses. The light goes on at dusk and cuts off at dawn automatically.

For full details call our nearest office right away.

FARM BETTER ELECTRICALLY

Appalachian Power Company

We send you this magazine with the hope that it will show you new ways to enjoy the profits and pleasures of dependable, low-cost electricity.

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